

REMARKS

This is in response to the Office Action dated July 18, 2006 in which all pending claims 1-21 were rejected. With this Amendment, claims 13 and 21 have been amended and the remaining claims are unchanged. Also, the specification has been amended to change the title. Applicants respectfully request reconsideration and allowance of all pending claims in view of the above-amendments and the following remarks.

I. SPECIFICATION

In section 4 of the Office Action, the Examiner objected to the title. By way of this Amendment, the title has been amended in accordance with the Examiner's suggestion. Therefore, the rejection should be withdrawn.

II. CLAIM OBJECTIONS

In section 5 of the Office Action, claim 13 was objected to because of informalities. In accordance with the Examiner's suggestion, claim 13 has been amended to replace "the information" with "an information" and therefore the rejection should be withdrawn.

III. CLAIM REJECTIONS UNDER 35 U.S.C. §112

In section 7 of the Office Action, claim 1, 3, 4, 7, 9, 10, 13-17 and 19-21 were rejected under 35 U.S.C. §112, second paragraph. In this rejection, the Office Action (citing section 2172 of the Manual of Patent Examination and Procedure (MPEP)) alleges that certain essential steps have been omitted in these claims. Specifically, the Office Action suggests that claims 1, 3, 4, 7, 9, 10, 13-17 and 19-20 should include what happens after the condition of "the information is not successfully read from any copy of the information after the maximal number of attempts."

According to section 2172 of the MPEP "[a] claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected under 35 U.S.C. 112." Nothing in the Specification or other statements of record indicate that events that may occur after the condition of "the information is not successfully read from any copy of the information after the maximal number of attempts" is essential to the process being claimed. Rather, the process being claimed in claim 1 is directed to the iterative attempts at

reading, not what happens after the iterative attempts. Such later events are irrelevant to claim 1. Similar arguments apply to the other claims. Therefore the rejection of claims 1, 3, 4, 7, 9, 10, 13-17 and 19-20 should be withdrawn.

With respect to claim 21, the Office Action alleges the claim lacks essential elements and a relationship with essential steps in “establishing minimal and maximal numbers that define two levels of retry attempts to read information on a storage medium.”

MPEP section 2172 also states that “essential matter may include missing elements, steps or necessary structural cooperative relationships of elements described by the applicant(s) as necessary to practice the invention.” Minimal and maximal numbers that define two levels of retry attempts to read information on a storage medium are the only elements disclosed in the Specification as necessary to practice the embodiments and therefore the rejection is improper. In any event, amended claim 21 further includes “storing the established minimal and maximal numbers in a device that includes the storage medium.” The inclusion of this new element, for which there is support on page 8, lines 7-13, of the Specification, obviates the claim rejection.

IV. CLAIM REJECTIONS UNDER 35 U.S.C. §101

In section 10 of the Office Action, claims 1-21 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter because they were said to merely manipulate an abstract idea without a claim limitation to a practical application.

The United States Patent and Trademark Office issued Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility (the Guidelines) in the Official Gazette Notice of November 22, 2005. In the Guidelines, it is stated that:

“To satisfy §101 requirements, the claim must be a practical application of the §101 judicial exception, which can be identified in various ways:

- The claimed invention “transforms” an article or physical object to a different state or a thing.
- The claimed invention otherwise produces a useful, concrete and tangible result, based on the factors discussed below.” (The Guidelines § IV, C, 2).

The definition of a useful, concrete and tangible result is found in the guidelines. For a result to be "useful" it must satisfy the utility requirement of §101. The United States Patent and Trademark Office's official interpretation of the utility requirement provides that the utility of an invention has to be (i) specific, (ii) substantial, and (iii) credible. (The Guidelines § IV, C, 2, b (1)). A result is "concrete" if it can be assured. "In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same results again." (The Guidelines § IV, C, 2, b, (3)). A result is "tangible" if it produces "a real world result." (Interim Guidelines § IV, C, 2, b (2)).

An example of a useful, concrete and tangible result is found in *State Street Bank and Trust Company v. Signature Financial Group Inc.*, 149 F.3d 1368, 47 USPQ 2d 1596 (Fed. Cir. 1998), the case which first set this standard. In *State Steet*, it was stated that "[t]he transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula or calculation because it produces a useful, concrete and tangible result - a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." Thus, the court did not care that a mathematical algorithm was used, only that the end result, the share price, was a useful, concrete and tangible result.

In independent claim 1, a statutory process is provided that has a practical application. In particular, the process produces a useful, concrete and tangible result, the very definition of a practical application.

Claim 1 establishes minimal and maximal numbers of read retry attempts. As noted in the specification, before the present embodiments, retry attempts were always carried out a predetermined number of times (based on a single retry attempt threshold) for a particular copy of information before moving on to a next copy of the information. By establishing minimal and maximal numbers of retry attempts, the present embodiments do not have to exhaust all retry attempts based on a single threshold, but can move on to the next copy of information after the minimal number of retry attempts is reached. Only if retry attempts to read all copies of

information, based on the minimal number of retry attempts fail, the retry process continues based on the maximal number of retry attempts. Thus, establishing minimal and maximal numbers of read retry attempts are not abstract but are real tangible things that impact the performance of a read operation.

Minimal and maximal numbers are “useful” since they define two levels of retry attempts to read information on a storage medium. A retry attempt based on maximal and minimal numbers is a “concrete” result. Further, claim 1 includes the concrete real-world steps of iteratively attempting to read the information from a tangible, physical device, the storage medium.

Applying the process of claim 1 to read information from a storage medium will repeatedly result in the same pattern of retry attempts each time the process is practiced. Thus, the retry attempts can be produced in a repeatable fashion, the definition of a concrete result. Lastly, such a question is a “tangible” result since it is a real-world result on a physical device.

Regarding the conditional statement in the last paragraph of claim 1, the claim expressly provides a positive limitation that includes “iteratively attempting reading successive copies of the information until either the information is successfully read or the information is not successfully read from any copy of the information after the maximal number of attempts.”

Thus, the maximal number provides a tangible bound on the number of iterative read attempts performed on the storage medium during step (c) of claim 1. Step (c) therefore provides a tangible result (iteratively attempting to read) on a physical device (storage medium) and provides a tangible bound to the number of iterations.

Since establishing minimal and maximal read retry attempts are useful, concrete and tangible, the process of claim 1 produces a useful, concrete and tangible result and therefore has a practical application as required by the Guidelines. Similarly, independent claim 7, 13 and 21 produce a useful, concrete and tangible result since they also establish minimal and maximal numbers of read retry attempts. Further, amended claim 21 includes the concrete real-world step of storing the established minimal and maximal numbers in a device that includes the storage medium.

As such, claims 1-21 all define statutory processes and do not merely manipulate an abstract idea but instead produce useful, concrete and tangible results. Thus, the rejection of claims 1-21 under 35 U.S.C. §101 should be withdrawn.

V. CLAIM REJECTIONS UNDER 35 U.S.C. §102

In section 13 of the Office Action, claim 21 was rejected under 35 U.S.C. §102(b) as being anticipated by Russell, U.S. Patent No. 6,332,204 B1.

Claim 21 includes “establishing minimal and maximal numbers that define two levels of retry attempts to read information on a storage medium.”

The Office Action suggests that Russell (abstract, column 2, lines 5-19, column 4, lines 41-46 and FIG. 3) teaches the above-noted element of claim 21. The Abstract of Russell is as follows:

“Where a number n of read attempts are required to successfully read a data sector, with the first $n-1$ attempts returning a disk drive read error, the number of attempts required is compared to a predefined threshold selected to indicate that the sector is unreliable and is in danger of becoming completely unrecoverable. If the threshold number of attempts is not exceeded, the sector is presumed to still be good and no further action need be taken. If the threshold number of attempts was equaled or exceeded, however, the unreliable or failing sector is relocated to a reserved replacement sector, with the recovered data written to the replacement sector. The failing data sector is remapped to the replacement sector, which becomes a fully functional substitute for the failing sector for future reads and writes while preserving the original user data. Data within a failing sector is thus preserved before the sector becomes completely unrecoverable.” (Emphasis Added.)

Neither the above abstract nor FIG. 3 and the remaining cited language of Russell teach the above-noted element of claim 1 for the following reasons.

First, Applicants respectfully point out that the cited language and figures of Russell show only a single predefined threshold value (see underlined portion of the Abstract above) and not maximal and minimal numbers as required by claim 21. Further, in claim 1, the

maximal and minimal numbers define two levels of retry attempts to read information on a storage medium, whereas the predetermined threshold in Russell is applied after all read attempts are carried out and the read operation is successfully completed. (See blocks 302 through 306 of Russell's FIG. 3). Also, Russell includes nothing about the newly added claim 21 limitation of "storing the established minimal and maximal numbers in a device that includes the storage medium." Thus, Russell does not anticipate claim 21.

In view of the forgoing, Applicants respectfully request reconsideration and allowance of claims 1-21. Favorable action upon all claims is solicited.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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